

WEST et al  
Appl. No. 10/524,048  
May 18, 2009

### **REMARKS/ARGUMENTS**

Reconsideration of this application and entry of the foregoing amendments are respectfully requested.

The specification has been amended to correct obvious clerical errors. Specifically, the specification has been amended to remove " $\square, \square$ " and insert " $\alpha, \alpha$ ". One skilled in the art would have readily appreciated that " $\square, \square$ " should read " $\alpha, \alpha$ " by virtue of the fact that, at page 11, line 11, "benzaldehyde dimethyl acetal" is indicated as being another name for " $\square, \square$ -dimethoxytoluene" and, as the Examiner will appreciate, "benzaldehyde dimethyl acetal" is another name for " $\alpha, \alpha$ -dimethoxytoluene" (see, for example, attached copy of 2002-2003 Lancaster catalogue which shows these names are used interchangeably). The specification has also been amended to replace the table at pages 39-44 with a new table that corrects the "OH" groups under "R4" to read "H". The need for this correction results from the fact that, in the specification at page 29, scaffold W6, for example, reads "R<sub>4</sub>O-" while in the claims R2 to R5 are defined as "OH, OR and N(Y)Z ..." and R4 is shown in formula 1 as directly bonded to the ring.

The Examiner's withdrawal of the rejection of the claims as lacking written description and as being obvious over Anderson et al is noted with appreciation. The withdrawal of the rejection of the claims based on obviousness-type double patenting over claims of Anderson et al is also noted and appreciated.

Claim 25 stands objected to in view of the fact that the status identifier used in the Amendment filed September 22, 2008 was "Withdrawn" – the status identifier now properly reads "Previously Presented". It has been noted that the status identifier given for claim 27 in the September 22, 2008 Amendment read "Previously Presented" when,

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in fact, it should have read "Currently Amended" since "Z4" was deleted. The present use of the identifier "Previously Presented" is proper (reference to Z4 does not appear in claim 27 as presented above).

Claims 1, 2, 4, 25, 26 and 28 stand rejected under 103(a) as allegedly being obvious over Papageorgiou et al (WO 00/42057). Withdrawal of the rejection is submitted to be in order for the reasons that follow.

As pointed out previously, the Examiner's reference to the compounds of the instant invention as having "protecting groups" is not correct. The compounds of the invention are stable compounds. The compounds comprise a monosaccharide scaffold particularly comprising an oxygen or sulphur atom at the anomeric center, at least one N(Y)Z group at R2-R5, and only one of R4 and R5 is hydroxyl. These compounds are based around a monosaccharide scaffold comprising groups that are specifically designed such that they are not readily removable.

Papageorgiou et al does not teach, nor would it have suggested, the claimed substituted monosaccharides in which the substituents are non-labile.

Papageorgiou et al is directed to orthogonally protected monosaccharides -- that is, every protecting group must be removable in the presence of all of the remaining groups in any order desired. The Examiner's position appears to be that it would have been obvious to construct a theoretical compound falling within scope the instant claims by selecting from the protecting groups listed in Papageorgiou et al. Applicants again submit that it is only with hindsight that such a suggestion could be found.

Applicants have argued previously (page 28 of the September 22 Amendment) that "the teachings of Papageorgiou et al would not have made the entire world of

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protecting groups available to the person skilled in the art, but rather a subset that fulfils the requirements of orthogonality." The Examiner agrees that it the case. However, the Examiner states on page 7 of the Action that the subset taught "Includes various orthogonal protecting groups falling within the limits of the claimed invention ... Therefore one of ordinary skill could have made various compounds falling within the claimed invention".

Respectfully, the Examiner's comment overlooks the fact that the proper question is not whether one could have made a compound falling within the scope of the claims but, rather, whether an artisan would have been motivated to do so by the cited art. Papageorgiou et al would not have provided any motivation to extend the subset taught, much less basis for expecting orthogonality outside that subset.

The Examiner appears to argue that intermediates in Papageorgiou et al leading to the orthogonally protected products, which are the subject of the citation, would have rendered obvious compounds falling within the scope of the instant claims, that is, compounds where there are still one or two hydroxyls free (for example, where R1 is SMe and R2 is an amine protecting group and R3 is a 4-methoxybenzyl ether and R4 and R5 are hydroxyl, for example, compound 9 at page 14 or compound 22 at page 17). Applicants submit that one skilled in the art would not have been motivated to prepare compounds falling within the scope of the invention based on the teachings of Papageorgiou et al because such compounds would not have been useful in arriving at the orthogonally protected monosaccharides that are the focus of the reference.

In view of the above, it will be clear that withdrawal of the rejection is in order and the same is requested.

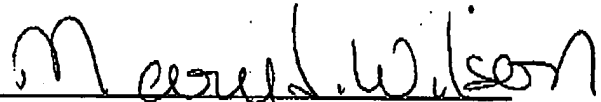
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Claims 1, 2, 4 and 25-27 stand provisionally rejected as allegedly representing obviousness-type double patenting over claims 14-18 of copending Application No 11/813,737. Applicants again note the provisional nature of this rejection and again direct attention to the fact that US 11/813,737 has a later priority date than the instant application. It is requested that the rejection be held in abeyance until the case is otherwise in condition for allowance.

This application is submitted to be in condition for allowance and a Notice to that effect is requested.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By:   
Mary J. Wilson  
Reg. No. 32,955

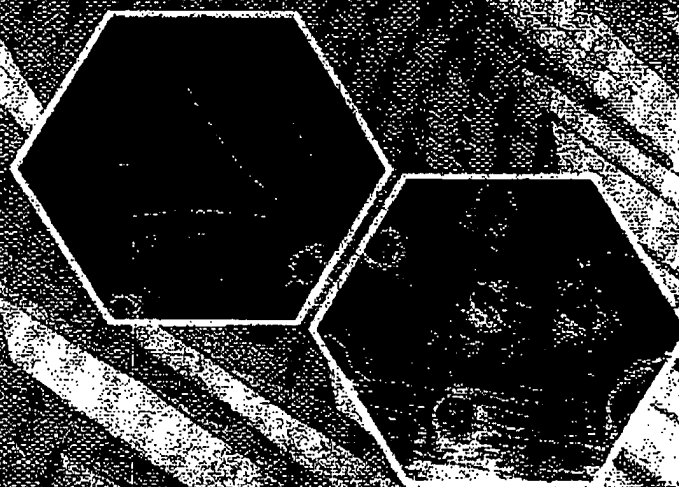
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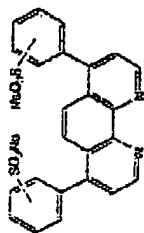
**phenanthroline-9-sulfonic acid disodium salt, 98%:**

phenanthroline sulfonates; 4,7-Diphenyl-1,10-  
uninephthalene sulfonic acid disodium salt]

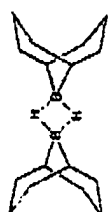
M.F., Q.S., FW 326.50 [E2746-49-3] mp >300°

S 25-B-152-0 TSCA

for info: J. Chem. Patrol. 9, 170 (1956).

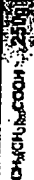


**B**ithienamidine sulphonic acid disodium salt, 95-14, p. 107  
dimer, 88%  
bicyclo[3.3.1]nonane dimer)  
*M.P.* 244.04 [21205-91-4] mp ca 140°  
3.1 3.24 5.46 6.62 7.29 8.47 10.48 15.43 17.49 20.52  
8  
SOLUBLE SOLID / MOISTURE SENSITIVE / AIR SENSITIVE



the dimer. Readily dissociates. For use in hydroboration of terminal alkynes in the synthesis of  $\alpha,\beta$ -unsaturated ketones, see: *Tetrahedron*, 48, 1487 (1992).  
Review of the chemistry of 9-EBN, see: *Pure Appl. Chem.*, 63, 387 (1991); brief reviews of the synthesis of 9-EBN, see: *J. Prakt. Chem./Chem. Ztg.*, 338, 385 (1986).

2,5-Bis(4-benzylthiophenyl)-1,3,4-oxadiazole, 7054, p. 192  
 2,5-Bis(4-benzylthiophenyl)-1,3,4-oxadiazole, 7074, p. 192  
 2,5-Bis(5-tert-butyl-2-benzoxazolylthiophene)-1,5,7,8, p. 193  
 2,5-Bis(2,5-dimethylsilylthiophenyl)-1,3,4, p. 199

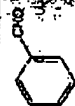


c acid, tech. 90%	DMFCH <sub>3</sub> COOH - 25/10
FW 340-60 [112-85-6] mp 74-78° ERNECS 204-010-8 TSCA Index 12, 1051	
22887	

acetohol, see 1-Docosanol. 7270, p. 805  
bromide, see 1-Bromodocosane. 3560, p. 261  
isole E, see Rose Bengal. 4386, p. 1528  
retaine, see Benzylidenecetone. 2683, p. 187  
sine, see Benzaldehyds äthne. 6484, p. 133



**Styrolite, 88%**  
 Name: distillate; *o*,*p*-Dichlorobenzene  
 bp 161-03 [98-87-3] mp -16° bp 82-84°/1 mm *bp* 92° *d* 1.252  
 n<sub>D</sub> 1.5475  
 ANAL. Calcd for C<sub>6</sub>H<sub>4</sub>Cl<sub>2</sub>: C, 49.03%; H, 3.14%; Cl, 47.83%.  
 Found: C, 49.03%; H, 3.14%; Cl, 47.83%.  
 REFCs: JZ57800D EINECS 302-709-2 TSCA March 12, 1984  
 9407 UN 1886  
 POSSIBLE CARCINOGEN / IRRITANT  
 R42-R37/38-40-41



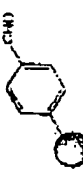
hydride, 99+%,  
 1706-12 (100-52-7) mp -56° bp 180-183° d 0.87  
 RTECS CU4375000 EINECS 202-860-4 TSCA P0587 1.48 6.26  
 10B5 BRN 4711223 JAN 1980  
 / AND SENSITIVE


protection of arings as benzylidene imines, readily cleaved by acid hydrolysis or hydrogenolysis, 1623 (1989); *Synth.*, 161 (1990); *Org. Synth. Coll.*, 7, 8 (1990).  
 For protection of 1,2- and 1,3-diols as cyclic benzylidene acetals, e.g. by acetone or acetaldehyde, see 1623 (1989); *J. Am. Chem. Soc.*, 104, 7026 (1982). See also Benzaldehyde dimethyl acetal, 1623 (1989).

[illegible]

**X** **FORMALDEHYDE** **8-23**  
8-23-3637  
Forms benzylidene derivatives with 1,2 and 1,3-diols, including carbohydrates, by acetal exchange; *Carbohydr. Res.* 21, 473 (1972); 44, 227 (1975); 137, 262 (1985); *J. Chem. Soc., Chem. Commun.* 1304 (1992). The group can be cleaved by a variety of methods, including acid hydrolysis and catalytic hydrogenolysis.

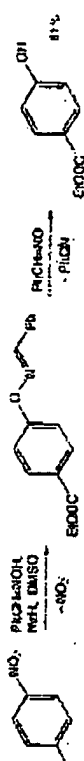
benzaldehyde on polystyrene. 0.8-1.5mmol/g  
4-Fornylpolystyrene  
NMR SENSITIVE  
25405  
2% crosslinked, 200-400 mesh  
Scavenger resin for primary amines, hydrazines, Meltrum's acid and organometallic reagents: J. Am. Chem. Soc. 93, 492 (1971); Tetrahedron Lett. 37, 7183 (1956). For a study of the symmetrical and unsymmetrical  
condensations in cross-linked polymer systems, see: Eur. Polym. J. 30, 881 (1994).



	25g	21.50
Benzaldehyde oxime, 96%	100g	81.40
Benzaldehyde oxime		
 <chem>c1ccccc1C=NO</chem>		
$\text{C}_7\text{H}_7\text{NO}$ FW 121.14 [932-60-1] mp 33-33° bp 188-189/70mm (p 108°)		
$\text{C}_7\text{H}_7\text{NO}$ $n_D^{20}$ 1.5910 EINECS 213-261-2 TSCA 680/774138		



☒ **CONFIDENTIAL** N 25638  
S 715-36  
The oximate anion displaces activated bromide nitro (or halogen) substituents. A second mode of oximate functioning as base with elimination of benzonitrile and overall conversion of the nitro-compound to a phenol; *J. Org. Chem.*, **38**, 3243 (1974);

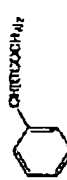



conjugate addition of the oximate anion to  $\alpha,\beta$ -unsaturated acetylenic carbonyl compounds gives  $\beta$ -dicarbonyl compounds: *J. Org. Chem.*, **38**, 1219 (1954). For example with reaction scheme, see Methyl phenylpropionate, 2284, p. 1267.

nitrides are conventionally dehydrated to nitrides with acidic anhydrides; see, e.g.: *Org. Synth. Coll.*, **2**, 822 (1955). Many other dehydration methods have been described, including (Triethyl)carbamate and acid: *J. Org. Chem.*, **38**, 3424 (1974). DMF - SOC<sub>2</sub>: *Tetrahedron Lett.*, **25**, 3305 (1984). SOCl<sub>2</sub> - DMAP: *Synthesis*, 472 (1980). SOCl<sub>2</sub>: *Synth. Commun.*, **3**, 101 (1973); *Chem. Ber.*, **107**, 1221 (1974). PPh<sub>3</sub> - CBr<sub>4</sub>: *Synth. Commun.*, **10**, 87 (1980). Trichloromethyl chloroformate (phosgene): *Synthesis*, **129** (1980). For a further example, see *Chloroacetanilide*, 8533. See also Hydroxylamine hydrochloride, 6118, p. 1034 for amide-polymerization of aldehydes to nitrides.

dehalogenation followed by elimination of HCl from the benzohydroxyamoyl chloride leads, *in situ*, to the 1,3-dipole.  
 2. conversion to the isothiocyanate, see Thiourea, 4417, p. 1624.

benzaldehyde Wang resin, see 4-Styryloxybenzaldehyde, polymer-supported, 18370, p. 171



Chemical Name	5g	14.80
benzyl acetate, 98%	25g	59.30
 benzyl acetate, 98% C <sub>9</sub> H <sub>10</sub> O <sub>2</sub> , FW 150.17, mp 44-45° EINECS 209-469-0 CAS 141-20-3		

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